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Claim Listing

1. (amended) A thick film ~~thermistor~~ sensor comprising:

(a) a first pair of shaped electrical conductors deposited on a first flexible film ~~support~~ substrate;

(b) a first temperature and force sensitive ink layer deposited over and between the first pair of electrical conductors so that the first temperature and force sensitive ink layer is coextensive with the first pair of electrical conductors; and

(c) a second flexible film ~~support~~ substrate bonded to the first flexible film ~~support~~ substrate.

2. (amended) The thick film ~~thermistor~~ sensor according to claim 1 wherein the first temperature and force sensitive ink layer comprises a high temperature, carbon-free temperature and force sensing ink layer.

3. (amended) The thick film ~~thermistor~~ sensor according to claim 1 wherein the first temperature and force sensitive ~~sensing~~ ink layer comprises:

(a) a high temperature ink binder;

(b) intrinsically semiconductive particles; and

(c) conductive particles comprising a conductive metal oxide compound based on an oxygen value of two.

4. (amended) The thick film ~~thermistor~~ sensor according to claim 3 wherein the first temperature and force sensitive ink layer comprises conductive particles having a mixture of conductive tin oxide particles and Fe_3O_4 iron oxide particles, and further comprises dielectric particles.

5. (amended) The thick film ~~thermistor~~ sensor according to claim 1 wherein the pair of shaped electrical conductors are ~~comprise~~ deposited shaped, silver based, conductive ink patterns.

6. (amended) The thick film ~~thermistor~~ sensor according to claim 1 wherein each conductor of the first pair of shaped electrical conductors is shaped in an interdigitated manner with the other electrical conductor of the first pair of shaped electrical conductors.

7. (amended) The thick film ~~thermistor~~ sensor according to claim 1 wherein a first resistance value of the ~~thermistor~~ sensor is determined by a surface area between ~~of~~ the first pair of shaped electrical conductors and a ~~resisitivity~~ resistivity of the at least one temperature and force sensitive ink layer.

8. (Canceled)

9. (amended) The thick film ~~thermistor~~ sensor according to claim 1 wherein the first pair of shaped electrical conductors are connected to resistance measuring circuitry for temperature compensation.

10-28. (Canceled)

29. (new) The thick film sensor according to claim 1 further comprising:

a first shaped electrical conductor deposited on the first flexible film support substrate;

a second shaped electrical conductor deposited on the second flexible film support substrate, the first shaped electrical conductor and the second shaped electrical conductor forming a second pair of shaped electrical conductors;

a second temperature and force sensitive ink layer deposited over the first conductor of the second pair of shaped electrical conductors and a third temperature and force sensitive ink layer deposited over the second conductor of the second pair of shaped electrical conductors; and

wherein the second temperature and force sensitive ink layer and the third temperature and force sensitive ink are in contact, between the first flexible film substrate and the second flexible film substrate so as to form a force sensor.

30. (new) The thick film sensor according to claim 29 wherein the first shaped conductor of the second pair of shaped electrical conductors and the second shaped electrical conductor of the second pair of shaped electrical conductors are mirror images of each other.

31. (new) The thick film sensor according to claim 30 wherein the second support substrate is bonded to the first support substrate so that the first shaped electrical conductor of the second pair of shaped electrical conductors is aligned in a mirror image manner with the second shaped electrical conductor of the second pair of shaped electrical conductors.

32. (new) The thick film sensor according to claim 29 wherein the conductors of the second pair of shaped electrical conductors are connected to resistance measuring circuitry.

33. (new) The thick film sensor according to claim 29 wherein at least one conductor of the first pair of shaped electrical conductors and at least one conductor of the second pair of shaped electrical conductors are connected on the substrate.

34. (new) The thick film sensor according to claim 29 wherein the first pair of shaped electrical conductors and the second pair of shaped electrical conductors are deposited, shaped, silver based, conductive ink patterns.

35. (new) The thick film sensor according to claim 29 wherein the first temperature and force sensitive ink layer, the second temperature and force sensitive ink layer, and the third temperature and force sensitive ink layer are of the same composition.

36. (new) The thick film sensor according to claim 1 wherein the first flexible film and the second flexible film are polyester or polyimide films.

37 (new) A thick film thermistor sensor comprising:

a first pair of shaped electrical conductors deposited on a first flexible film substrate;

a first semiconductive resistive ink layer deposited over and between the first pair of electrical conductors so that the first semiconductive resistive ink layer is coextensive with the first pair of electrical conductors; and

a second flexible film substrate bonded to the first flexible film substrate.

wherein each conductor of the first pair of shaped electrical conductors is shaped in an interdigitated manner with the other electrical conductor of the first pair of shaped electrical conductors.

38. (new) The thick film sensor according to claim 37 wherein the first flexible film and the second flexible film are polyester or polyimide films.

39. (new) The thick film thermistor according to claim 37 wherein the semiconductive resistive ink layer comprises a high temperature, carbon-free temperature sensing ink layer having a

a high temperature ink binder;

intrinsically semiconductive particles; and

conductive particles comprising a conductive metal oxide compound based on an oxygen value of two.